

Handbook of Combinatorics, Volume 1. Edited by R. L. Graham, M. Grötschel, and L. Lovász. Elsevier/MIT Press, Amsterdam, Cambridge, MA. (1995). 1018 pages. \$150.00.

Contents:

Preface. List of contributors. I. Structures. Graphs. 1. Basic graph theory: Paths and circuits (J.A. Bondy). 2. Connectivity and network flows (A. Frank). 3. Matchings and extensions (W.R. Pulleyblank). 4. Colouring, stable sets and perfect graphs (B. Toft). Appendix to Chapter 4. Nowhere-zero flows (P.D. Seymour). 5. Embeddings and minors (C. Thomassen). 6. Random graphs (M. Karoński). Finite sets and relations. 7. Hypergraphs (P. Duchet). 8. Partially ordered sets (W.T. Trotter). Matroids. 9. Matroids: Fundamental concepts (D.J.A. Welsh). 10. Matroid minors (P.D. Seymour). 11. Matroid optimization and algorithms (R.E. Bixby and W.H. Cunningham). Symmetric structures. 12. Permutation groups (P.J. Cameron). 13. Finite geometries (P.J. Cameron). 14. Block designs (A.E. Brouwer). 15. Association schemes (A.E. Brouwer and W.H. Haemers). 16. Codes (J.H. van Lint). Combinatorial structures in geometry and number theory. 17. Extremal problems in combinatorial geometry (P. Erdős and G. Purdy). 18. Convex polytopes and related complexes (V. Klee and P. Kleinschmidt). 19. Point lattices (J.C. Lagarias). 20. Combinatorial number theory (C. Pomerance and A. Sárközy). Author index. Subject index.

Handbook of Combinatorics, Volume 1. Edited by R. L. Graham, M. Grötschel, and L. Lovász. Elsevier/MIT Press, Amsterdam, Cambridge, MA. (1995). 1018 pages. \$162.50.

Contents:

Preface. List of contributors. Part II. Aspects. 21. Algebraic enumeration (I.M. Gessel and R.P. Stanley). 22. Asymptotic enumeration methods (A.M. Odlyzko). 23. Extremal graph theory (B. Bollobás). 24. Extremal set systems (P. Frankl). 25. Ramsey theory (J. Nešetřil). 26. Discrepancy theory (J. Beck and V.T. Sós). 27. Automorphism groups, isomorphism, reconstruction (L. Babai). 28. Combinatorial optimization (M. Grötschel and L. Lovász). 29. Computational complexity (D.B. Shmoys and É. Tardos). Part III. Methods. 30. Polyhedral combinatorics (A. Schrijver). 31. Tools from linear algebra (C.D. Godsil). Appendix (L. Lovász). 32. Tools from higher algebra (N. Alon). 33. Probabilistic methods (J. Spencer). 34. Topological methods (A. Björner). Part IV. Applications. 35. Combinatorics in operations research (A.W.J. Kolen and J.K. Lenstra). 36. Combinatorics in electrical engineering and statics (A. Recski). 37. Combinatorics in statistical physics (C.D. Godsil, M. Grötschel and D.J.A. Welsh). 38. Combinatorics in chemistry (D.H. Rouvray). 39. Applications of combinatorics to molecular biology (M.S. Waterman). 40. Combinatorics in computer science (L. Lovász, D.B. Shmoys and É. Tardos). 41. Combinatorics in pure mathematics (L. Lovász, L. Pyber, D.J.A. Welsh and G.M. Ziegler). Part V. Horizons. 42. Infinite combinatorics (A. Hajnal). 43. Combinatorial games (R.K. Guy). 44. The history of combinatorics (N.L. Biggs, E.K. Lloyd and R.J. Wilson). Author index. Subject index.

Knowing Machines: Essays on Technical Change. By Donald MacKenzie. MIT Press, Cambridge, MA. (1996). 338 pages. \$35.00.

Contents:

Acknowledgments. 1. Introduction. 2. Marx and the machine. 3. Economic and sociological explanations of technological change. 4. From the luminiferous ether to the Boeing 757. 5. Nuclear weapons laboratories and the development of supercomputing. 6. The charismatic engineer (with Boelie Elzen). 7. The fangs of the VIPER. 8. Negotiating arithmetic, constructing proof. 9. Computer-related accidental death. 10. Tacit knowledge and the uninvention of nuclear weapons (with Graham Spinardi). Notes. Index.

Experiments in Mathematics Using Maple. By C. T. J. Dodson and E. A. Gonzalez. Springer, Berlin. (1995). 465 pages. DM 48.00.

Contents:

I. Pre-calculus mathematics. 1. Introduction to *Maple*. 2. Functions. 3. Quadratic functions. 4. Solving quadratic equations. 5. Polynomial functions. 6. Exponential functions. 7. Logarithmic functions. 8. Circular functions. 9. Trigonometry. 10. Similar figures. 11. Circles and spheres. 12. Loci. 13. Sequences and series. 14. Statistics and probability. II. Beginning calculus. 15. Secants and tangents. 16. Sequences and limits. 17. Derivatives of functions. 18. Functions and graphs. 19. Rates. 20. Integration. 21. Trigonometry. 22. Exponents and logarithms. 23. Polar coordinates. Appendices. A. Solutions to Part I exercises. B. Solutions to Part II exercises. C. *Maple* procedures. Bibliography. Index.

Practical Numerical Analysis. By Gwynne A. Evans. John Wiley & Sons, Chichester. (1995). 455 pages. \$45.00.

Contents:

Preface. 1. Introduction to numerical processes and non-linear equations. 2. Differences, interpolation and differentiation. 3. Solution of algebraic equations. 4. Algebraic eigenvalue problem. 5. Approximation theory. 6. Quadrature. 7. Ordinary differential equations. 8. Integral equations. 9. Partial differential equations. 10. Optimization methods. Appendices. A. Answers, notes and hints for selected exercises. B. Gauss quadrature weights and abscissae. C. Patterson quadrature weights and abscissae. D. Chebyshev polynomials. References. Author index. Subject index.